Guide to Developing the Carcass Disposal Function of a Community Animal Response Plan (CARP)

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I. Planning Steps for Carcass Disposal Development:

A. Events Affecting the Community and Types of Animal Concentrations

1. List the natural and man-made disasters that could occur and require a community to conduct carcass disposal efforts, such as:
    - Wildfires
    - Floods
    - Tornadoes
    - Hurricanes
    - Blizzards
    - Transportation accidents involving animals
    - Hazardous material incidents
    - Other

2. Identify the types and numbers of animals in the community that may be affected by a man-made or natural disaster and require disposal. Different concentrations of animals will affect how carcass disposal is conducted. Examples of types of animals to consider are:
    - Household pets (see FEMA DAP 9523.19)
    - Livestock and poultry in concentrated animal feeding operations (CAFOs)
    - Exotic or zoo animals
    - Research animals
    - Animals, such as those in vet clinics, boarding kennels, breeding facilities, etc.
    - Privately-owned livestock: cattle, swine, sheep, goats, horses, poultry

B. Carcass Disposal Methods and Necessary Resources – Pre-Event Planning

1. Explore methods of disposal that may be viable options for the community. It is important to be familiar with different methods of carcass disposal in order to determine which methods may be the most practical for the community. Disposal methods include:
    - Rendering
    - Incineration
    - Burial (onsite or offsite – landfill)
    - Burning
    - Chemical digestion
    - Composting

2. Review attached disposal method definition sheet along with the advantages and disadvantages of each method. Keep in mind that different environmental factors and resource restrictions may affect a community at the time a disaster occurs. Identifying multiple disposal options can be beneficial to a jurisdiction. Identify all the methods that may be viable options for the community.

3. It is important to locate existing resources for disposal before a disaster occurs. List resources that exist in the community that may be able to assist with disposal. Examples to consider include:
    - Community public works department
    - County or city equipment such as dozers, dump trucks, front-end loaders, etc.

    a. There may be businesses or entities in the community that have disposal experience or access to specialized disposal resources. Develop a contact list of these resources. Examples include:
        - Rendering plants
        - Slaughter facilities
        - Commercial carcass removal companies
        - Debris contractors
        - Incinerators
        - Landfills
        - Veterinary clinics equipped with incinerators
        - Existing animal shelters
        - CAFO/ Local Industry

    b. Explore locations in the community that could be used as a pre-identified carcass disposal site. Pre-identified sites can expedite disposal operations for any event because environmental issues and digging requirements can be evaluated before an event occurs. Examples include:
        - Active or Closed landfills
        - County or city-owned property
        - Timber companies with plots open for replanting
        - Brownfields

6. Certain regulations must be addressed when planning for carcass disposal. Include personnel from regulatory agencies when developing carcass disposal plans and during the actual response if possible. Representatives can be located by contacting the local office for your jurisdiction.
    a. These resources include:
        - Texas State Soil and Water Conservation Board (TSSWC)
        - Texas Commission on Environmental Quality (TCEQ)
        - Texas Animal Health Commission (TAHC)
        - Natural Resources Conservation Service (NRCS)
        - Texas Department of Transportation (TxDOT)
        - Department of State Health Services (DSHS)

    b. The issues for which the regulatory agencies should be able to provide information and assistance to the community during plan development and response include:
        - Texas One-Call notification system requirements before digging
        - Recommendations to vent the hole to allow gasses from decomposing carcasses to escape and prevent the carcasses from expanding and resurfacing
        - Guidelines on approximate hole dimensions per size and number of carcasses to be buried
        - Specific disease related requirements
        - Guidelines for excavation safety

C. Pre-disaster Training for Responders

1. Provide responders with training prior to a disaster event. Trainings include:
   a. Knowledge of basic incident command system principles
      - ICS 100, 200, 700, and 800
      - ICS training allows the evacuation operation to integrate with other emergency response operations in the community
      - Links to ICS training can be located at www.fema.gov
   b. General safety guidelines for working in a disaster situation:
      - Monitor weather activities
      - Be aware of potential dangers in surroundings
      - Follow safety guidelines for operating heavy machinery
      - Ensure operators of heavy machinery are licensed and credentialed, if required

II. Planning for Carcass Disposal Response

A. Initiating Carcass Disposal Operations

1. Determine if carcass disposal is needed, then assess the scope of the disposal operation and the circumstances around the event. This will help the community determine:
   - Amount of assets to activate (equipment and personnel needed)
   - How many carcasses are involved and what kind
   - How extensive the carcass disposal operation will be (visible from road side, right-of-ways, private property assistance)
   - Duration of the activity (estimated time for completion)
   - If the event can be addressed by the local jurisdiction
   - When local assets will be exhausted

2. Provide responders with information about the carcass disposal operation. Information that should be provided to responders includes:
   a. Details about the event affecting the community:
      - Number of carcasses located during the damage assessment process
      - Locations of carcasses to be removed

   b. Plan to have regulatory representatives available to provide information to responders on actions that should be taken to properly dispose of carcasses according to the method of disposal selected:
      - On the job training for the method of disposal in use
      - Procedures to follow to collect identification on carcasses
      - Information on where to take carcasses collected
      - Other safety related information

B. Other Considerations:

1. In the event that disposal operations are affected by zoonotic disease concerns, the local health department, local veterinarian, TAHC, or DSHS should be consulted for advice regarding how to safely and effectively conduct disposal operations.

2. In the event that a community provides carcass disposal support to TAHC during a response to a Foreign Animal Disease (FAD) outbreak, the state and federal responders provide guidance on the appropriate disposal method to contain the FAD.

C. Demobilization of Disposal Assets and Post Event Planning

1. Plans to demobilize personnel and equipment from the operation must be initiated when the disposal operation begins. Tasks to consider include:
   a. Estimating the length of time the disposal operation will be conducted
   b. Estimating the amount of resources and time available to conduct the operation
   c. Processing disposal equipment:
      - Inventorying equipment and supplies
      - Cleaning and disinfecting equipment
      - Returning equipment to storage or to the original owner

2. At the completion of the carcass disposal operations, discuss the events that occurred during the response with the responders.
   a. Note processes that were successful and plan to sustain them.
   b. Discuss processes that need improvement and plan to correct them.
   c. Amend existing plans to show the corrections.
   d. Ensure animal plans continue to coincide with existing emergency management plans in the community

3. Review and update carcass disposal plans, resource lists, and contact lists on a regular basis to ensure they are accurate when needed.

Methods of Carcass Disposal:

1. Burial- placing of animals in a pit for disposal. The pit must be covered after placement of animals. Examples include:

   a. Off-site burial (landfill or pre-determined public site)
      - Advantages
        No issues with deed recordation
        Potential to speed up the burial process
        Environmental concerns will be handled by the landfill operator
      - Disadvantages
        Equipment needed to transport carcasses to site and for burial
        Availability of landfills in the affected area
        Requires approval to access landfills which are no longer in use
        Access to landfills after hours, or on weekends or holidays

      *Landfill hours of operation, types of carcasses accepted and capacities should be determined in advance.

   b. On-site burial (such as in a pit on private property)
      - Advantages:
        Generally quickest method
        Often more economical
        Easiest to organize for small numbers of carcasses
        Often most convenient
      - Disadvantages:
        Possible contamination of water supply depending on site location
        Identifying an acceptable location
        Access to burial site
        Equipment required
        Bio-security considerations
        Safety risk if underground pipelines or cables are not identified before digging begins

2. Incineration- burning carcasses. General methods to conduct carcass disposal by burning:

   a. Open Air Burning:
      - Advantages:
        Can often be conducted without moving carcasses off-site
        Less risk of ground water contamination
        Ease of burning animals with higher fat content
      - Disadvantages:
        Requires addition of combustible material (timber, straw etc) which may not be readily available
        Nuisance odor/smoke may be produced by burning (see TCEQ regulations)
        Potential for fire to be difficult to contain
        Difficulty burning poultry, which have low fat content and feathers
        Difficulty burning wet animals

May alarm neighbors or the public

b. Biological Incineration (burning of carcasses in an enclosed structure)
   - Advantages:
     Limited pollution concerns
     Complete destruction of carcasses
   - Disadvantages:
     Potentially expensive
     Lack of portability (requires transport of carcasses)
     Location of existing incinerators
     Limited capacity and number of incinerators

c. Controlled Burning (air curtain incinerator)
   - Advantages:
     Portable
     Environmentally friendly
     Can incinerate vegetative debris (from disaster) along with carcasses
     Debris removal companies may already have equipment on-site
   - Disadvantages:
     Potentially expensive
     Not readily available in all areas
     Large amounts of fuel sources required

3. Composting- controlled decomposition of organic material. This can be carried out in confinement structures or in windrows in open fields or pastures. Routinely used in commercial poultry operations, either in-house or in open air.
   - Advantages:
     Considered environmentally friendly
     Usually a low cost option
     End product that can be used as fertilizer (recycling process)
   - Disadvantages:
     Slow process (months to complete) for large animal carcasses
     Labor issues during process
     Not always an acceptable choice for disposal of diseased carcasses
     Requires technical expertise
     May require manipulation of large animal carcasses to complete (turning)

4. Rendering- the process of separating animal fats and proteins, usually by cooking.
   - Advantages:
     Environmentally friendly
     End result creates a usable product
   - Disadvantages:
     Requires transport to plant
     May not be a viable choice for diseased carcasses
     Not all species can be effectively rendered
     Limited number of rendering plants
     Capacity issues can occur
     Requires movement of carcasses off-site

5. Alkaline Hydrolysis- or tissue digestion. This process uses alkali at elevated temperatures to convert the animal carcass to a sterile aqueous solution of amino acids, sugars and soaps.

- Advantages:
  - Sterilizes and digests in one operation
  - More economical than some methods
  - Environmentally friendly
  - Effective for prion destruction (BSE, CWD or Scrapie)
- Disadvantages:
  - Not widely available
  - Capacity limits, not practical for large-scale disasters

6. Natural Decomposition – In some situations, carcasses may be in areas that are not easily or safely accessible to responders. In those cases, natural decomposition may be the only option. If the carcasses are not a nuisance to the public or an environmental hazard, this may be an acceptable alternative. Consult with regulatory agencies and land owner to ensure no risk to the environment, or other problems will be created.

Acronyms and Links

Acronyms:

AIC – Animal Issues Committee
BSE – Bovine Spongiform Encephalopathy
CWD – Chronic Wasting Disease
DSHS – Department of State Health Services
EOC – Emergency Operations Center
ICS – Incident Command System
MOU/MOA – Memorandum of understanding/agreement
SOP – Standard operating procedure
TAHC – Texas Animal Health Commission
TCEQ – Texas Commission on Environmental Quality
TSSWCB – Texas State Soil and Water Conservation Board
NRCS – Natural Resources Conservation Service
FSA – Farm Service Agency
USDA – United States Department of Agriculture

Web Links

- To locate links to Animal Issues Committee planning materials go to:

  www.tahc.state.tx.us

- To locate information regarding specific regulatory information regarding disposal of animal carcasses and environmental issues go to:

  www.tceq.state.tx.us or www.tsswcb.state.tx.us

- To access the location of acceptable landfills in or near your community:

  http://www.tceq.state.tx.us/assets/public/comm_exec/pubs/as/187_08.pdf

- To access TCEQ documents about carcass disposal:

  Disposal of Domestic or Exotic Livestock Carcasses or Handling and Disposal of Carcasses from Poultry Operations

- To locate the number for the local Texas One-Call notification system call:

  800-669-8344, 800-DIG-TESS, or 800-245-4545

- To locate access information regarding reimbursement for assistance carcass disposal expenses or about indemnity payment for livestock lost as a result of a natural disaster:

  www.nrcs.usda.gov or www.fsa.usda.gov

- To locate a field guide on best practices for disposal of contaminated animal and plant material:

  http://fazd.tamu.edu/publications/books/fieldguide/